

INTERNATIONAL TRADE IN CORAL AND CORAL REEF SPECIES

TRADE SUBGROUP REPORT TO THE U.S. CORAL REEF TASK FORCE

I. OVERVIEW

Coral reefs are being seriously degraded by human activities, especially overexploitation of resources, destructive fishing practices, coastal development and runoff from improper land-use practices. The international trade in coral, reef fish, live rock, and other coral reef organisms are activities that contribute to the decline and degradation of reefs, primarily through destructive fishing practices and the overexploitation of resources. Recent surveys indicate that there may be no pristine reefs left in the world. Coral reef resources traded internationally supply a wide number of markets and industries, including the seafood industry, live food fish markets, the aquarium trade, the curio and jewelry trade, and the pharmaceutical and research industries. As a major consumer of coral reef organisms, a major player in the world trade arena, and a leader in coral reef conservation efforts, the United States has a critical responsibility to address coral reef trade issues.

The following report examines the nature and extent of threats to reefs related to the international trade in coral reef resources, describes current activities that the United States is undertaking to address some of the issues, and recommends strategies and actions to address these threats.

II KEY THREATS OR ISSUES

Destructive Fishing Practices

Cyanide fishing. Although illegal in most countries, the use of cyanide to stun and capture fish alive is widespread, and is driven by the lucrative, growing, and largely unregulated international trade in live reef food fish and marine aquarium industry.¹ The use of cyanide has spread from the Philippines and Indonesia into the South Pacific. Cyanide is used to capture live fish because it is fast acting, which allows easy capture. Cyanide causes damage to the liver, intestine, and reproductive organs of the target fish, and a large percentage of the cyanide-caught fish die in the trade stream, or shortly after purchase by the consumer. Cyanide also harms reefs by killing non-target marine organisms such as small fish and invertebrates, including the coral itself (Johannes and Riepen, 1995). Laboratory studies have demonstrated that a very brief exposure to cyanide at the levels used by fishers causes coral bleaching and inhibition of photosynthesis and calcification, and coral mortality can occur after a prolonged (30 minute)

¹ The use of cyanide has been documented in detail by various reports, including a report released by the Nature Conservancy in October 1995, and a report issued by the World Resources Institute and the International Marine Alliance in December 1997.

exposure to concentrations several fold lower than that used by fishers (Jones and Stevens, 1997).

In addition, cyanide fishing poses human health risks to the local fishers who are exposed to the cyanide and who dive under unhealthful conditions. In Indonesia and the Philippines many cyanide fishers use compressed air without any training. As fish populations are depleted from nearshore areas divers have to go further offshore and dive deeper, to as much as 200 feet, to catch the desired species. Surveys in several Filipino communities undertaken in 1993 and 1994 indicate that 10% or more of the fishers developed serious cases of the bends involving paralysis, and as many as 5% of the fishers died (Johanes and Riepen, 1995). The health risks of eating fish caught with cyanide have not been studied or documented.

Other fishing practices with destructive effects on reefs. Other fishing practices can have destructive impacts on reefs, and they are described briefly here. The rest of this report, however, does not focus on these issues. Dynamite or blast fishing. Dynamite, which can reduce particular reefs to rubble, is used primarily by small-scale fishers to supply food for subsistence or for local markets. Trawling and purse seining. Trawling and purse seining involve large nets that are towed behind a boat across soft bottom habitats to catch shrimp and small fish. Shrimp caught in trawls are a major source of shrimp in international trade. Trawling can scour the bottom and result in bycatch of non-target species. In addition, recent advancements in technology now make it possible to trawl across deeper coral habitats, disrupting the ecosystem and essential fish habitat. Gill nets. Gill nets are nets that are dragged across coral or set on or near a reef; fish are caught when they swim through the net and are caught by their gills. Gill nets can damage coral and other benthic habitat as they are dragged along the bottom. Long-line. Long-lines are heavy lines with weights and hooks towed behind fishing vessels used to catch pelagics, sharks and other species. Fishers target spawning aggregations of grouper and other live reef fish using longlines. Lost gear end up as marine debris on coral reefs. Initial NMFS surveys in the Northwest Hawaiian Islands encountered a density of 4230 kg of marine debris per square kilometer, much of it due to international fishery operations in the Pacific.

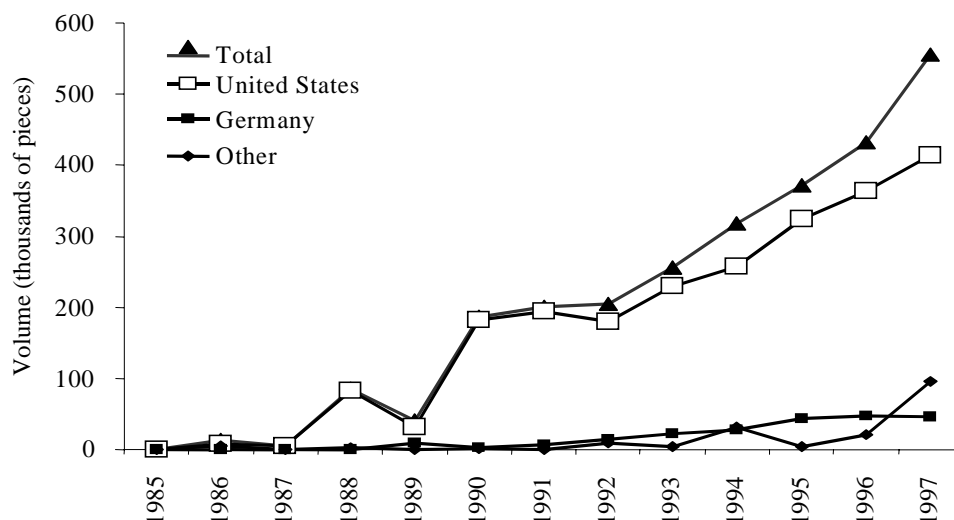
Overexploitation of Resources

Coral/ Live Rock. Although stony corals are regulated internationally under the Convention on International Trade in Endangered Species (CITES), there are serious concerns that the international trade in live and raw coral, live rock, and coral products is not sustainable at present rates of harvest. Commercial harvest of corals causes localized destruction of coral reefs, including increased erosion and loss of critical fisheries habitat. Live rock is essential for the reef because it provides important habitat for motile fish and invertebrates; it provides vital substrates for the settlement and recruitment of benthic organisms; and it contributes to the structure of the reefs and to total coral reef biomass. The taxa harvested for curios are primarily branching corals, many of which suffered catastrophic mortalities during the coral bleaching event of 1997-1998. In addition, coral collection for the aquaria and jewelry targets a small number of species that are often, rare, slow-growing and long-lived. Overexploitation of these species could result in loss of diversity and severe localized extirpations. The international trade in coral and live rock to supply the aquarium trade has increased at a rate of 12 to 30% per year

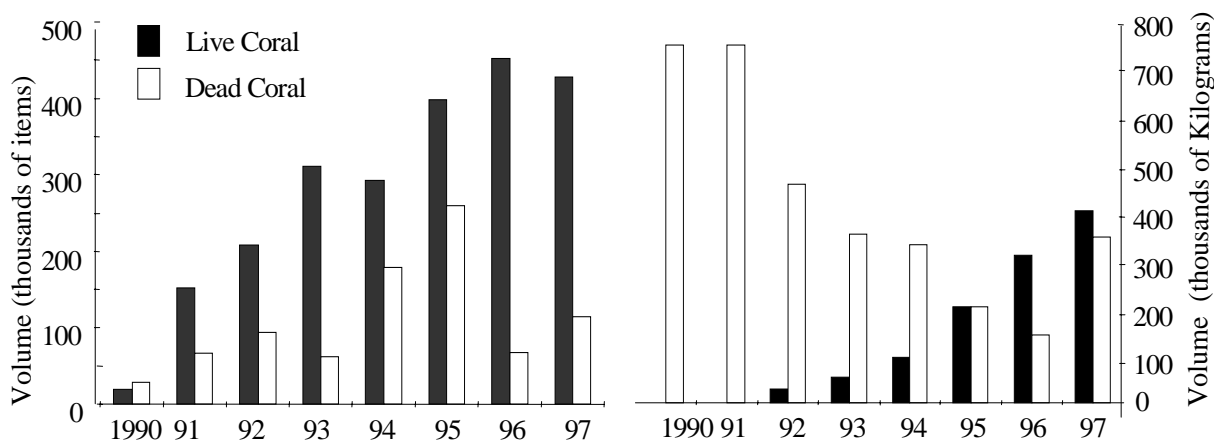
since 1990, with the majority of all coral in trade destined for the United States. (See Appendix A for a chart of the primary importers and exporters of coral species, based on 1997 CITES import data).

CITES Appendix II listing. Over 2000 species of hard corals are listed under Appendix II of CITES, which includes all species that may become threatened with extinction unless trade is subject to strict regulation, and other species which must be subject to regulation in order that trade in species that may become threatened may be brought under effective control. CITES, Art. II(2). In order for an Appendix II-listed species to be traded, exporting countries must issue an export permit conditioned on certain findings of sustainability (that the export will not be detrimental to the survival of the species, that the specimen was not obtained in contravention of the laws of that state; and that any living specimen was prepared to minimize risk of injury, damage to health or cruel treatment). Many exporting countries may not have the resources to fully implement these requirements, and the scientific information necessary to make these findings is generally unavailable. Because of the concern that countries are extracting and exporting coral at a non-sustainable rate, some importing countries have set forth more restrictive import requirements. The European Union, for example, requires import permits in addition to the export permit, which is issued only when the importing party determines that the trade is sustainable. In September 1999, EU member states decided to temporarily prohibit the import of approximately 6 to 8 coral species from Indonesia, based on serious questions about Indonesia's findings of "non-detriment."

The United States role in coral/live rock trade. The United States currently is the number one consumer of live coral and live rock for the aquarium trade. Based on CITES data, in 1997, the United States imported approximately 80% of all the live coral in trade representing at least 420,000 pieces. That same year, the United States imported over 90% of the live rock in international trade (reported as scleractinia, or base rock for marine aquaria consisting of living marine organisms attached to dead coral substrate). Imports of dead coral have leveled off since 1993, but the imports of live coral and live rock has increased dramatically each year. Trade between the United States and Indonesia from 1985 to 1997 accounted for approximately 26% of the world trade in coral.



The volume of coral in trade as live specimens, reported to the level of *Genus* as thousands of pieces. The volume in trade has increased by 20-30% per year since 1992. The U.S. has consistently imported 70-90% of all live coral in trade, with up to 10% destined for Germany and approximately 10% imported by all other countries. In recent years, imports to Japan have increased, and they currently exceed Germany in total volume.



Total trade in coral reported as "Scleractinia" between 1990 and 1997. A. Trade in thousands of items in trade. B. Trade in thousands of kilograms. A substantial amount of unidentified coral skeletons were reported as Scleractinia in the early 1990s, however, the vast majority of the trade today consists of live rock. Most scleractinia reported by item originates in Indonesia, while most reported by weight is from Fiji; the volume of trade from Fiji has increased by 50-100% per year for the last several years. The U.S. imports most (>90%) of the live rock in trade.

Existing regulations/laws on coral trade. The United States strictly regulates or prohibits

the domestic harvest of live rock and hard corals in most federal, state and territorial waters. (See Appendix C for a description of U.S. laws pertaining to coral harvest and trade). The domestic market for these items is supplied primarily through imports from other countries. Internationally, concerns regarding the effects of the trade in coral have prompted Mozambique to impose a complete ban on exports of coral and aquarium fish until at least 2001. The Fiji government estimates that 3% of the reef surrounding Fiji's main island, Viti Levu, has been depleted by the coral trade, and it currently is reviewing the trade and considering measures to take to ensure sustainable exports. The Philippines has banned the collection, sale and export of corals since the late 1970s. (See Appendix B for a description of foreign national laws).

Marine aquarium trade. Concerns also have been raised regarding the potential overexploitation of reef fish and other coral organisms for the marine aquarium trade. The United States is reported to import nearly half of the total worldwide trade in aquarium fishes, with 80-90% originating in Indonesia and the Philippines. An estimated 50-60% of the Philippines aquarium fish and 90% of the Indonesian aquarium fish imported into the United States are captured with cyanide (Cesar, H. 1996). Thus, the United States has been the major importer of cyanide-caught aquarium fish.

Most countries do not collect specific data on the aquarium fish trade, nor do they have management programs in place for harvesting aquarium reef fish. More information and research is necessary to assess the impacts of this trade on coral reefs. Aside from the concerns regarding cyanide fishing, several factors relating to the marine aquarium trade have been identified that suggest a risk of overexploitation. One is that species harvested as juveniles for the aquarium trade are important fisheries species as adults. A second factor is that one of the major groups of aquarium fish are herbivores that regulate the amount of benthic algae; their removal could lead to increases in algae, which overgrow and kill corals, and inhibit settlement of coral larvae. A third factor is that coral reef ecosystems have evolved in extreme nutrient poor conditions to become very efficient nutrient recyclers, resulting in having "little to spare" in terms of the amount of biomass that is exportable or harvestable through human activities. A fourth factor is that the level of "waste" in the aquarium trade is very high; it has been estimated that the mortality of reef species from source reefs to home aquaria are as high as 90%. Some of the popular species are also ones that are difficult to maintain in captivity, which contributes to further mortality. The high level of mortality in the trade stream and in captivity creates additional harvest pressures. A fifth factor is that the species with the highest retail value are those that are the rarest and hardest to find in the wild, which creates economic incentives adverse to the survival of those species; determining the impact of removal of these species would be most difficult given their rare or uncommon status.

U.S. role in marine aquarium trade. In addition to live fish, a large number of invertebrates, including soft corals, anemones, crustaceans, molluscs and many other phyla are imported into the United States for the aquarium trade. Because these are not listed in CITES, and the harvest and trade in these taxa is largely unregulated, we have little or no information on the quantity or the impact of their removal on the resource. The United States is the primary importer of reef fish and other coral species for the aquarium trade, and thus may be driving an unsustainable harvest of these organisms. Approximately 1 million hobbyists are in the United States out of the estimated 1.5 million worldwide.

Live Food Fish Trade. Though live food fish have been consumed in countries like China for centuries, the international live food fish industry (and use of cyanide to catch the fish) has increased dramatically only in the last two decades. In December 1997, the World Resources Institute and the International Marine Alliance reported that a conservative estimate of the wholesale value of the Hong Kong live food fish trade is about \$450 million, with a retail sales value that may top \$1 billion.² Popular reef fish in this trade include various grouper species, the napoleon wrasse, and coral trout, all of which are taxa that are threatened or endangered throughout their range. Aside from concerns relating to cyanide fishing, fishers are targeting spawning aggregations and eliminating entire breeding populations. The ecological consequences of the live fish food industry is that reefs with abundant sources of target fish get "fished out" very rapidly, and the commercial harvesters move to other countries until those countries' reefs become depleted of the target species as well.

U.S. role in live food fish trade. Live reef food fish imports to the United States are negligible at this time.

Seahorses. Extensive harvesting of seahorses is occurring for the pet trade and curio trade, but the bulk of the harvest is for the Asian medicinal trade. The main threats to seahorse populations are widespread declines in abundance resulting from overfishing and habitat loss; seahorse populations in Indo Pacific countries have declines by 25 to 75% over the past five years. One report suggests over 20 million specimens in trade. Twenty nations worldwide are exporting seahorses, including the United States. Captive breeding programs designed to reduce the pressure on wild populations have been mostly unsuccessful, due to difficulties in rearing young seahorses, high incidence of disease, and a continued need for removal of adults from the wild to maintain brooding stock. Although seahorses are popular for aquaria, they are notoriously difficult to keep, and very few survive in captivity.

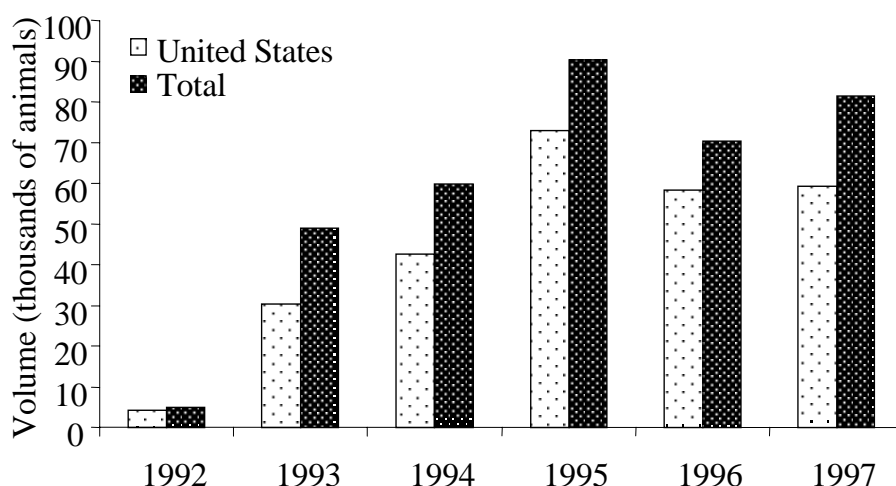
U.S. role in seahorse trade. The United States is an exporter and importer of seahorses, either live as aquarium fishes, or dried for traditional medicines and curios. The U.S. imports seahorses from the caribbean, Indonesia, Philippines, Sri Lanka and through Singapore. Seahorses are brought in as bycatch of shrimp trawling in Florida; more seahorses are caught on Florida's west coast than on the east coast (Vincent, 1997). The number of seahorses landed in the United States has steadily increased since records were first taken in 1990, with over 112,000 seahorses taken in Florida waters in 1994.

Giant Clams. Giant clams have formed an important part of the diet for some Pacific Islanders, and their meat and shells continue to be harvested for subsistence and commercial purposes. A more recently developed industry involves harvest of live specimens for use in the aquarium trade. Eight of the nine Tridacnidae species are on the IUCN Red List of Threatened Animals. The two largest species which are most desirable for meat and shells, *T. gigas* and *T. deresa*, have been extirpated throughout much of their range. Giant clams are also listed on Appendix II of CITES. Because of the small size and rapid growth of juvenile clams, hatcheries

² *Id.* at 2.

and grow-out facilities can supply a portion of the aquaria trade. For instance, in 1996, approximately 17% of all live clams in trade were captive-reared; in 1997 the volume of trade was similar, although 38% were captive-reared. A very small portion of the trade in meat and shells is provided by mariculture facilities, as these products require many years to mature and clam mariculture facilities have experienced high mortalities from storms, disease and predators. In addition, raising the largest, most desirable species is not economical, and attempted reintroductions to restock depleted reefs has met with limited success.

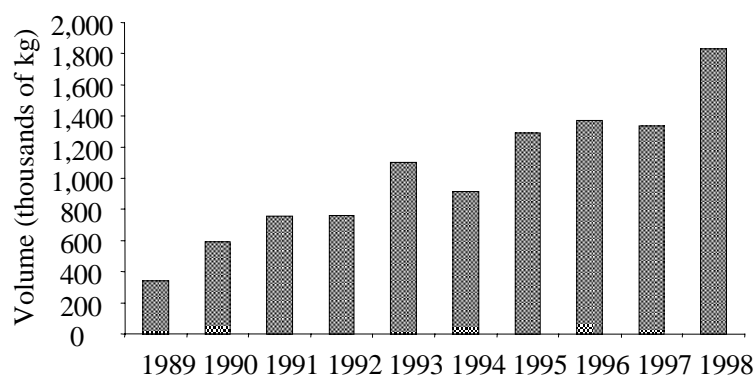
U.S. role in giant clam trade. Live giant clams (Tridacnidae) are imported primarily for aquarium specimens and for brood stock for mariculture facilities. Between 60-80,000 animals are traded internationally each year with over 70% destined for the U.S. Captive reared clams supply an increasing portion of the trade for aquarium specimens. The U.S. also imports shells as curios, however we do not import a significant amount of giant clam meat.



The total volume of live clams traded between 1992-1997 is shown for all countries, and the proportion that are imported into the U.S.

Queen Conch. Queen conch has been an important subsistence and commercial fishery in the Caribbean for centuries. The shell trade for jewelry and curios is a by-product of the large meat trade. There has been a growing concern about the conch fishery as populations have been depleted, and it has been suggested that harvest may not be sustainable. Enforcement of existing harvest regulations and inspections of international shipments has not been effective. Hatchery techniques are well established, but survival in the wild of hatchery-reared juveniles has been poor. Mariculture facilities have not yet proven to be economically profitable. Queen conch are also listed on Appendix II of CITES.

U.S. role in queen conch trade: Imports of queen conch meat into the United States have steadily increased in the last decade. The European Union also imports an unknown, although possibly large amount.



Total weight of queen conch meat imported into the United States from 1989-1998.

II CURRENT U.S. ACTIVITIES TO ADDRESS THREATS

Measures to address destructive fishing practices and overexploitation of resources depend first and foremost on education (of both the fisher and consumer), alleviating poverty and overfishing, proper legislation and regulation to eliminate improper techniques, and enforcement of existing and new fishing regulations. Efforts are also needed at the international level, working within existing fora to strengthen and enforce international and regional treaties and conventions. For example, the adoption and implementation of the Convention on International Trade in Flora and Fauna Species (CITES) and the FAO Code of Conduct for Responsible Fishing by all countries are also key steps.

International Capacity Building: Technical and Financial Assistance

The United States is, and has been, a strong supporter of international capacity building in natural resource management through its development and outreach programs. Tropical marine ecosystems are critical to U.S. government development strategies in environment, food security, economic growth, health, disaster mitigation, biodiversity conservation and climate change in many countries. The sustainable use and protection of coral reefs depends upon building the capacity for in-country natural resource management and protection.

U.S. Department of State/U.S. Agency for International Development (USAID).

Almost \$1.5 million in new funds was directed in 1999 towards protecting coral reef resources under the "East Asia and Pacific Environmental Initiative." Programs under this initiative were specifically designed to address aspects of the international trade issue in coral and coral reef species, including:

- Actions to retrain fishers on the use of non-destructive fishing practices and to stop the spread of cyanide use, and to establish monitoring programs to assess and inventory the trade in live food fish, particularly through the port of Hong Kong. Implementation is through the Destructive Fishing Reform Initiative of the International Marinelifelife Alliance/ World Resources Institute.

- Actions to address the live food fish trade through advancing policies, laws, management plans, awareness, and alternative livelihood programs such as maricultured live reef fish. Implementation is through The Nature Conservancy.
- Actions that engage the private sector in establishing cyanide-free and sustainability certification plans for aquarium fish and coral species. Implementation is through the Marine Aquarium Council.
- Coral reef conservation efforts of the South Pacific Region Environmental Program (SPREP). Activities will address destructive fishing practices, coral harvest for foreign markets, coral bleaching and other threats, and include training workshops for member nations to develop permit systems, and certification and labeling protocols for the coral harvest and trade.
- Capacity-building in protected areas law enforcement for resource professionals, implemented by the Department of the Interior in conjunction with the World Wildlife Fund.
- Sea turtle conservation efforts through policy dialogue, information exchange, sea turtle monitoring of migratory range, and a multilateral conference to address regional conservation needs. Activities will be implemented by the Department of State and NOAA.
- Actions to protect the Sulu-Sulawesi Large Marine Ecosystem, an area that is rich in coral, fish and sea turtle biodiversity. Activities include increased management capacity and enforcement at marine protected areas and is implemented by the World Wildlife Fund.

U.S. Agency for International Development (USAID). USAID supports the conservation and sustainable use of coral reef resources through natural resource management in over twenty countries. Ongoing programs support capacity building in sustainable resource use, sustainable international trade of reef resources, monitoring and assessment of reefs, sea turtle conservation, reduction in destructive fishing practices such as cyanide use, community-based natural resource management, integrated coastal management, marine park management, institutional strengthening, national policy development, legislative and judicial reform, enforcement, alternative livelihood development, sustainable financing, pollution mitigation, certification and economic development. These activities combine demonstrations of improved management by local communities with support from government, non-governmental organizations and the private sector, and they include policy reform for decentralizing and clarifying management authorities, institutional capacity building, technology transfer, and dispute resolution elements.

USFWS/ NMFS Programs. In November 1998, the North American Wildlife Enforcement Group (NAWEG) convened a workshop on identification of CITES-listed marine invertebrate species as an aid to enforcement in the region. Among the materials distributed at

the workshop was a full-color laminated identification guide to CITES-listed corals common in the trade. The guide, which is still in draft form, is now available in Spanish and English. Talks are underway with the CITES Secretariat to determine if wider distribution of this document might be feasible.

USFWS Programs. International Affairs and Law Enforcement routinely provide training and technical assistance for other CITES Party countries with support from USAID and other programs to encourage improved regulation of international trade in corals and other CITES-listed species.

NOAA Programs. NOAA's projects support capacity building for marine and coastal resource management, sustainable fisheries, implementation of the International Coral Reef Initiative, sustainable international trade of coral reef resources, monitoring and assessment of reefs, sea turtle conservation, and reduction in destructive fishing practices such as cyanide use. Specific trade-related projects include capacity-building assistance to the Indo-Pacific for coral identification; addressing fishing through the Asian-Pacific Economic Corporation (APEC) fora; and queen conch sustainable management assistance.

Participation in International Fora

The United States has participated in a number of international activities to promote and support existing initiatives and agreements relating to the trade in coral species and destructive fishing practices. A brief summary of some of these activities follow.

Convention on International Trade in Endangered Species (CITES). Over 2000 species of corals including the reef-building corals, giant clams, and queen conch are listed in Appendix II of CITES, under which their export requires a permit from the country of origin. CITES provides for a systematic review of biological and trade information on significantly traded Appendix II species to ensure that their trade is sustainable. The World Conservation Monitoring Center (WCMC) recently completed a study on the global trade in coral based on CITES trade data going back to 1982. NOAA also recently did a report on CITES-listed hard corals. At the July 1999 CITES Animals Committee meeting, trade in CITES-listed corals was discussed. Indonesia discussed its coral harvest and how they set their export quotas. The United States, Indonesia, and the EU met informally and decided to continue discussions about reporting requirements. Indonesia and the UK may propose a resolution at 11th Conference of Parties (COP11) in April 2000 to establish reporting requirements for coral exports.

Additionally, CITES Parties currently are preparing decisions on which species they are considering for proposals for listing changes for COP11 in April 2000. The United States is considering a discussion paper on seahorses (*Hippocampus spp.*). Additional coral reef species may be added to the CITES appendices if the parties so decide at COP 11.

International Coral Reef Initiative (ICRI). The U.S. was a primary force behind the founding of the International Coral Reef Initiative (ICRI) in 1994 and continues to be one of its strongest supporters. ICRI is a voluntary initiative aimed at mobilizing governments and a wide

range of other stakeholders to address the threats to reefs. ICRI's 1998 Renewed Call to Action reflected increasing concern over the state of coral reefs. There was a recognition that destructive and unsustainable fishing practices, in addition to other forms of overexploitation, are destroying coral reef ecosystems. A commitment was made by the ICRI partners to eliminate unsustainable fishing practices. The partners also recognized that activities of the private sector, including tourism and trade, can protect or destroy coral reef ecosystems, and thus committed to working with these entities to foster appreciation of the value of coral reefs and encourage the private sector to use and protect coral reefs in an ecologically sustainable way. ICRI provides a good forum for the United States to continue to raise awareness of our interest in addressing concerns over trade in coral reef resources.

Convention on Biological Diversity. While the United States is not a Party to the Convention on Biological Diversity, it should be noted that concern over destructive fishing impacts on coral reefs was raised at a CBD meeting first in 1995. The United States, as an observer government, is continuing to participate in the work on the Jakarta Mandate on Marine and Coastal Biodiversity, and raise coral reef trade concerns.

International Queen Conch Initiative. Queen conch (*Strombus gigas*) was listed in Appendix II of CITES in 1992. With trade data now being reported, the true extent of the trade is being realized. In the 1996 Declaration of San Juan, countries in the region pledged to work together to strengthen bilateral, sub-regional, and regional mechanisms to establish common management regimes for the sustainable use of queen. More recently, range states in the Caribbean have begun to meet to develop harmonized management measures such as coordinated close seasons.

North American Wildlife Enforcement Group. The North American Wildlife Enforcement Group (NAWEG) under the Commission for Environmental Cooperation (NAFTA) is an on-going forum among Canadian, U.S. and Mexican wildlife enforcement agencies to exchange information, expertise, and strategies for enhanced enforcement and compliance with wildlife laws. In November 1998, the NAWEG held a workshop to train North American wildlife enforcement officers in the identification of corals. At the April 1999 trilateral meeting of NAWEG, the United States provided an overview of U.S. Coral Reef Task Force activities, highlighting the trade concerns.

World Customs Organization and Interpol. Meetings of and communications from the World Customs Organization subgroup on CITES and the Interpol subgroup on wildlife crime both provide opportunities to discuss illegal trade concerns regarding coral reef resources.

Asian-Pacific Economic Cooperation (APEC). The Forum on Asia-Pacific Economic Cooperation (APEC) has 2 working groups interested in international trade in coral reef species: the Marine Resource Conservation (MRCWG) Working Group and the Fisheries Working Group (FWG). The United States has been instrumental in putting the use of cyanide for collecting fish at the forefront of these two working groups.

- In June 1997, NMFS sponsored a workshop in Mexico on reef-destructive fishing,

cyanide fishing and the live reef fish trade in conjunction with an APEC FWG meeting. A resolution was drafted by United States delegates condemning the use of cyanide for this purpose and urging cooperative support. In December 1997 the MRCWG sponsored a follow-up technical workshop on the impacts of destructive fishing practices on the marine environment. A comprehensive list of draft recommendations relating to destructive fishing practices was prepared for APEC. As a result of this workshop, Hong Kong, the largest importer of live food fish, refined its data collection system and is preparing identification materials to assist in trade monitoring.

- In October 1998, the United States hosted an APEC Oceans Conference where the Economies agreed that APEC should support strengthening the capacity of APEC economies to address destructive fishing practices, and set a priority on addressing cyanide fishing. The APEC economies also agreed to renew their commitments to implement the FAO Code of Conduct for Responsible Fisheries and to establish a small task force to draft a framework for cooperative action to address destructive fishing practices in the region, set management standards and guidelines for export and import, and share data, information and experience.
- At the 10th APEC Fisheries Working Group Meeting held in May 1999 in Australia, the MRCWG and the FWG held a joint session. There, the United States proposed and agreed to organize and host a joint inter-sessional meeting of these two working groups to design a multi-year implementation program of the APEC coral reef workshop recommendations.

South Pacific Regional Environmental Program (SPREP). SPREP is an intergovernmental organization charged with promoting protection and improvement of the Pacific islands environment and ensuring its sustainable development. Its members are the Governments and Administrations of 22 Pacific island countries and four developed countries (United States, France, Australia and New Zealand). Its permanent secretariat is in Apia, Samoa. The State Department has supported SPREP's Action Plan for the Environment for a number of years. This year, the State Department and USAID are supporting its Coral Reef Action Plan to implement coral reef conservation activities. Various agencies (USAID, USFWS, DOI, NOAA, DOS) met with SPREP Director Tutangata during his July 12-14, 1999, visit to Washington, D.C. Topics included aid to SPREP for coral reef initiatives, coral trade, NOAA programs on oceans and environment, climate change and coral bleaching. In July of 1999, Assistant Administrator of USAID, David Hales, had the opportunity to raise coral trade issues at a regional climate change meeting in the Marshall Islands.

Domestic Activities

The United States, through the Coral Reef Task Force, has taken steps domestically to understand and address the concerns raised about the international trade in coral and reef species. The United States has gathered information from exporting countries through State Department cable requests. The Fish and Wildlife Service is providing a second training session on the identification of CITES-listed species, and beginning in January 2000, will collect import data on ornamental fish in a new, improved way.

IV PROPOSED STRATEGIES AND ACTIONS

The following section describes proposed strategies and actions that the U.S. Coral Reef Task Force can take to address the issues described above.

International Activities

International Strategy

1. Work within existing international (multilateral and bilateral) frameworks to address concerns regarding coral reef species trade.

The United States will continue to work within existing international frameworks to address concerns regarding overexploitation of coral reef resources and destructive fishing practices. Our international strategy on coral trade would involve working with existing international treaties, organizations and fora, regional organizations and meetings, and bilaterally through our embassies, missions, and official visits to the primary exporting countries. As many of the reefs exploited for trade are located in the Indo-Pacific or Caribbean regions, we should discuss our concerns with exporting countries from those regions first. We also need to work closely with other importing countries such as the UK, Germany, the Netherlands and Japan. Some specific recommended actions include:

CITES

- Continue to share NMFS photographic identification manual for Indo-Pacific corals with interested countries and seek funding for additional publication.
- Support a resolution at COP 11 to establish standard coral reporting requirements.
- Fund a workshop in Indonesia for CITES importing and exporting countries to evaluate their quota system and reef monitoring efforts.
- Continue to work with the Conference of Parties to add coral and reef fish species to the Appendices as warranted.

ICRI/GCRMN

- Continue to work with ICRI to raise USG concerns regarding coral trade, and propose ways to work together to address them (e.g., propose a joint ICRI experts/policy maker visits to key exporting countries to discuss trade issues).
- Explore with the federal agencies funding for an ICRI workshop on coral trade and destructive fishing, or support a special symposium on the impact of trade on reef ecosystems at the Bali 2000 Symposium of the International Society for Reef Studies.

APEC

- Host a joint Marine Resources Committee Working Group and Fisheries Working Group meeting to discuss implementation of the recommendations from the previous workshops on destructive fishing practices.

South Pacific Region Environment Program (SPREP)

- Continue to work with SPREP to offer technical assistance; to help build capacity to implement CITES regulations and monitoring resource use; and encourage further cooperation between local and international NGOs and SPREP efforts.

Ramsar Convention

- Encourage Ramsar parties particularly in the Indo-Pacific area and the Caribbean to submit project proposals for consideration under their funds.
- Encourage non-party countries to join and designate coral reef marine protected areas.

Bilateral Consultations

- Engage both exporting and importing countries on the trade problem, through our embassies, missions, and official visits, and opportunities presented by meetings in the region and other venues.
- Consider engaging governments in setting common standards for the sustainable management of coral reefs.
- Consult with other importing countries (e.g., Japan, Germany, UK) to explore ways to increase consumer public awareness.

Education, Outreach and Research

2. Raise international awareness and continue to gather information regarding nature and impacts of international coral trade.

The United States should work with exporting and importing countries, NGOs, industry, scientists, and other stakeholders at the international and regional levels to better understand the nature of the trade in coral reef species, increase public awareness and education, and to develop collaborative or innovative mechanisms to address the concerns raised in this report. The United States could collaborate with others to:

- Understand the nature of trade impacts: assemble international trade data and statistics; understand the socio-economic impacts of coral reef trade on communities; review countries' laws and regulations on harvest, trade and aquaculture; assess the current situation regarding international enforcement and resource availability; and learn about existing efforts to promote sustainable use of coral resources.
- Raise awareness about the issues, particularly among consumers.
- Encourage alternatives: promote low-tech, community based alternatives to the wild harvest of coral reef species such as sustainable captive-breeding or artificial culture programs; encourage the development of sustainable management plans; and consider the feasibility of certification or labeling schemes.

Technical and Financial Assistance

3. Assist source countries by providing technical and financial assistance to address overexploitation of resources and destructive fishing practices.

The Trade Subgroup recommends that the United States continue to provide both technical and financial assistance and training to exporting countries to address overexploitation of coral resources and destructive fishing practices. Specifically, the United States could:

- Expand efforts to develop and implement sustainable management programs by building capacity at the local and national levels. The United States should expand its work with source countries to develop coral reef management programs to prevent illegal fishing practices, achieve sustainable fisheries and harvests, and protect the ecological integrity of coral reefs. Examples of assistance would include: (1) encouraging the development of viable certification methods or guidelines to verify that coral reef resources are sustainably harvested, handled and transported; (2) enhancing countries capacity to implement CITES through workshops focused on implementing legislation and regulations, law enforcement and implementation of Management and Scientific Authorities; (3) developing community-level or private sector management programs for biological monitoring; and (4) facilitating database-sharing of biological information among governments, and between governments and the community/private sector.
- Expand efforts to re-train collectors and fishers to teach non-destructive harvest techniques and alternative livelihoods.
- Address international enforcement needs. The United States has played a lead role in assisting countries with enforcement of international trade and other wildlife protections. Assistance in the form of inspection techniques, detection of document fraud and smuggling, identification of commonly traded species, detection of humane transport violations, and investigation of illegal trafficking schemes should continue as resources allow. Assistance could also include technical assistance and training support and mentoring programs for prosecutors and judges, to help assist countries in strengthening their legal and judicial system.

Domestic activities

Domestic Enforcement

4. Improve domestic enforcement of illegal coral trade and wildlife smuggling.

The United States has the authority under the Lacey Act, 16 U.S.C. § 3372 et seq., to prohibit the import, export, sale, receipt, possession or transportation of wildlife taken in violation of any state, federal, tribal, or foreign law. Most countries around the world have

banned fishing by use of explosives, poisons, and other destructive practices which are often used to harvest coral reef species for trade. The Trade Subgroup recommends the following actions that can help improve domestic enforcement of illegal trade in coral reef species:

- Explore use of U.S. cyanide tests on live coral fish. The National Fish and Wildlife Forensics Laboratory currently uses a detection test for migratory birds taken using cyanide. It has not been determined whether this test could be effective for testing tropical fish which are taken using cyanide, after the fish enter the stream of commerce in the United States. Many source countries for tropical fish and food fish have prohibitions in place regarding the use of cyanide but enforcement capabilities are limited. If an effective test can be used in the United States, we can assist source countries with enforcement of their cyanide prohibitions by using the Lacey Act. Inspection of shipments could also include random cyanide testing as resources allow.
- Increase federal enforcement capability through additional resources. International trade in most coral reef species is regulated by the U.S. Fish and Wildlife through its wildlife inspection program. The program currently has 93 inspectors stationed at 30 ports of entry to inspect the more than 80,000 declared and the tremendous number of undeclared shipments. Additional resources would allow federal officers to detect illegal shipments and verify species identification and trade data. Detection of illegal harvest is shared depending on the area of jurisdiction between the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service, and the National Park Service. Personnel and equipment are currently inadequate to address the vast coral U.S. coral reef areas.

Education, Outreach and Research

5. Raise domestic consumer awareness and encourage alternatives to wild collection of coral reef species.

Similar to the activity described above, the Trade Subgroup recommends that the United States work with its states and territories, NGOs, scientists, and industries on a domestic level to educate the public and to encourage innovative solutions. Some specific activities include:

- Create education and awareness materials that emphasize issues regarding trade in coral reef species (see Appendix D for an example of consumer awareness materials).
- Encourage alternatives to wild collection of coral reef species: develop mechanisms to address destructive fishing, mortality of species in trade; explore certification or eco-labeling, encourage development of synthetics, and encourage sustainable captive-breeding or artificial culture programs.

6. Analyze and improve U.S. collection, reporting and monitoring of data for the

international trade in coral reef species

The Trade Subgroup proposes to analyze existing import data collected in the United States, and to revise and improve data gathering and reporting where feasible and appropriate. The United States should also improve the collection, reporting, and monitoring of global trade data for coral reef species not covered by existing international agreements, such as CITES, to identify possible trade impacts on the resource.

7. Complete review of the advisability of legislation that might include a restriction on commerce of certain coral reef species to address the concern that U.S. consumer demand may be driving unsustainable harvest of these organisms.

In March 1999, the Task Force requested that the Council on Environmental Quality lead an accelerated interagency review of the advisability of pursuing legislation that addresses trade in coral and coral species. The Trade Subgroup has conducted and will continue to conduct consultations with exporting and importing countries, states and territories, NGOs, industry, and the public to obtain recommendations for the most effective solutions to the problems related to trade in coral reef species. Based on these consultations and on its own preparatory work, the Subgroup will complete its analysis regarding whether new legislative authorities could help address the degradation of the coral reefs, including the concerns relating to commerce in certain coral reef species and the United States' involvement in that commerce as a major consumer of coral reef products.

APPENDICES

- Appendix A: Primary Importers and Exporters of Coral Species (1997 CITES import data)
- Appendix B: Foreign National Laws Pertaining to Coral Trade/Harvest and Destructive Fishing Practices
- Appendix C: U.S. Laws Pertaining to Coral Trade/Harvest and Destructive Fishing Practices
- Appendix D: Draft educational/outreach materials for marine aquarium hobbyists
- Appendix E: List of International Trade Subgroup Members
- Appendix F: References

APPENDIX A
PRIMARY IMPORTERS AND EXPORTERS OF SOME CORAL REEF SPECIES
BASED ON CITES ANNUAL DATA FOR 1997³

Species	Primary Exporters	Primary Importers
Live Coral (Reported to genus)	Indonesia (71%) Solomon Islands (6%) Fiji (12%)	United States (78%) Germany (8%) Japan (7%) Others (7%)
Live Rock (reported as scleractinia)	Fiji (89% by weight) Indonesia (74% by piece)	United States (95% by weight) United States (95% by piece)
Coral Skeleton	Indonesia (12% by piece) Mozambique (35% by piece) Fiji (42% by piece) Indonesia (31% by weight) Vietnam (37% by weight) Solomon Islands (25% by weight)	United States (30% by piece) Spain (65% by piece) Italy (5% by piece) United States (65% by weight) Japan (33% by weight)
Worked Coral Skeleton	Hong Kong (69% of stony corals) Korea (31% of stony corals) Hong Kong (95% of scleractinia) Taiwan (99% of antipatharians)	United States (99.5% of antipatharians) United States (95% of stony corals)
Giant Clams (live)	Solomon Islands (41%) Philippines (32%) Tonga (11%)	United States (82%) Germany (12.4%)
(Meat)	Philippines (64%) PG (36%)	Japan (64%) Singapore (32%) United States (4%)
(Shells)	Mozambique (85% by kg, 61% by piece)	Italy (61% by piece) Portugal (20% by piece) Spain (13% by piece) New Zealand (5% by piece) United States (<1% by piece) Italy (70% by weight) New Caledonia (16% by weight) Portugal (14% by weight)

³ Current (1999) data may differ slightly from listed values. For instance, Indonesia no longer allows the export of dead coral skeletons, Mozambique banned the export of all coral, and the volume of coral from Fiji has increased dramatically.

APPENDIX B

FOREIGN NATIONAL LAWS PERTAINING TO CORAL HARVEST/TRADE AND DESTRUCTIVE FISHING PRACTICES

I. Pacific Countries

Country (Pacific)	Law/ Prohibition	Cite
Australia	<p><u>Coral Trade and Protection</u> Prohibits exports and imports of certain reef species except with a permit. Australian Minister shall not grant an import permit unless he makes certain determinations, depending on the species.</p> <p><u>Destructive Fishing Practices</u> Prohibits commercial fishing unless valid fishing license or permit; no license has been issued permitting the use of chemicals for taking fish</p> <p>Prohibits chemicals being added to water ways for the capture of fish, unless a permit has been issued</p>	<p>Wildlife Protection (regulation of exports and imports) Act 1982</p> <p>Fisheries Management Act 1991</p> <p>Each Australian State and Territory</p>
China	<p><u>Destructive Fishing Practices</u> Prohibits use of explosives, poisons and electric fishing and other behaviors destroying aquatic wildlife resources</p>	<p>Regulations on Breeding and Protection of Aquatic Products Resource, 1979, Art. II</p>
Indonesia	<p><u>Coral Trade and Protection</u> Export of recently dead coral prohibited. Export quota system for live coral: (1999 quota follows) Scleractinia substrate (soft corals with attached substrate) 675,000 pieces; Scleractinia base rock (live rock) 135,000 pieces; Live coral (broken down by genus, in some cases by species) 878,675 pieces. Prohibits harvest or sale of giant clams without permits; permits issued under extraordinary circumstances</p> <p><u>Destructive Fishing Practices</u> Prohibits catch and cultivation of fish using materials or tools that "may possibly endanger the fishery resource and its environment," and any activity "which leads to pollution and damages the fishery sources and their environment." Prohibits use of explosive materials, toxic substances, and electric current for fishing. Use of such substances for scientific research or other technical activities is regulated.</p>	<p>Indonesian Act No. 9/1985 on Fishery, Article 6 & 7</p> <p>Clarification of the Act of the Republic of Indonesia No. 9 of 1985, Art. 6</p>

Country (Pacific)	Law/ Prohibition	Cite
Fiji	<u>Coral Trade and Protection</u> Requires baseline survey before coral harvesting is allowed. Export of coral banned unless exporter supplies full listing of species exported. Moratorium on new entrants into coral export market. Maximum annual harvest quantities for 1999: up to 1,500,000 kgs of live base rock and up to 450,000 live coral pieces, up to 130,968 pieces of unworked coral (curio)	
Japan	<u>Destructive Fishing Practices</u> Prohibits taking or gathering of any aquatic animal or plant by means of any explosive substance, excluding marine mammals; prohibits taking or gathering by poisons (except by permit); prohibits possession or sale of aquatic animals or plants taken in violation of above	Fishery Resources Conservation Law, Art. 5, 6, 7
Kiribati	<u>Destructive Fishing Practices</u> Prohibits use of explosives, poison or other noxious substance for killing, stunning, disabling or catching fish	Fisheries Ordinance, Sec. 14
Marshall Islands	<u>Coral Trade and Protection</u> Virtual ban on trade in live fish trade for Asian markets Fines exceeding \$200,000 have been imposed and confiscation of vessels for destructive practices Export license for exporting live coral & aquarium fish is \$2,000 per year <u>Destructive Fishing Practices</u> fine up to \$20,000 and/or imprisonment for up to 6 months for improper fishery practices.	Marshall Islands Marine Resources Act
Palau	<u>Coral Trade and Protection</u> Exports of sponges and marine rocks are prohibited, including four types of hard corals. No laws or regulations protecting the coral s from Palauians using corals to make lime <u>Destructive Fishing Practices</u> Prohibits knowingly catching marine life with explosives, poisons, chemicals or other substances which kill marine life; prohibits possession or sale of marine life caught in violation of above	24 PNCA 1301, 1302

Country (Pacific)	Law/ Prohibition	Cite
Philippines	<p><u>Coral Trade and Protection</u> Prohibits collection, sale and export of coral</p> <p><u>Destructive Fishing Practices</u> Prohibits catching, taking, or gathering of fish and fishery aquatic products in Philippine waters with the use of explosives, obnoxious or poisonous substance (unless by permit for scientific, research or educational purposes)</p> <p>Prohibits the knowing possession, sale, or disposal of, for profit, of any fish or fishery/aquatic products which have been illegally caught, taken or gathered.</p>	<p>Presidential Decree 1219, 1977</p> <p>Official Gazette Vol. 71, No. 28, July 14, Ch. VI sec. 33</p>
Singapore	<p><u>Coral Take, Harvest, or Trade</u> Prohibits imports, exports and re-exports of CITES-scheduled species without a permit</p> <p><u>Destructive Fishing Practices</u> Prohibits use of any poisonous or explosive substances with the intent to stupefy, poison or kill fish (unless issued a license)</p>	<p>The Endangered Species (Import and Export) Act 1989, sec. 4</p> <p>Fisheries Act, sec. 12</p>
Solomon Islands	<p><u>Coral Take, Harvest or Trade</u> Coral exporters must obtain a fisheries license for coral extraction which cites place where coral may be extracted and the quantity. An export permit must then be obtained.</p>	
Taiwan	<p><u>Destructive Fishing Practices</u> Prohibits use of poison, dynamite or other explosives, electric shots or anesthetic agents to catch living marine resources</p>	Taiwan Fishery Law Art 48
Thailand	<p><u>Coral Take, Harvest, or Trade</u> Prohibits coral collection.</p> <p><u>Destructive Fishing Practices</u> Prohibits pouring, throwing away, draining or laying in the fisheries such poisonous substances as determined by Notification of the Minister, or any act that stupefies the aquatic animals</p> <p>Prohibits the use of an electric current in fisheries, or use explosives in fisheries in any other way (except by permission or permit)</p> <p>Prohibits possession for commercial purposes of aquatic animals that one knows have been taken in contravention of above</p>	<p>Fisheries Act B.E. 24909, 1947, and amendments 1972</p> <p>Fisheries Act B.E. 2490, sec. 19</p> <p>sec. 20</p> <p>sec. 20 bis</p>
Tuvalu	<p><u>Coral Trade and Protection</u> Regulates sand and coral removal</p>	Wildlife Conservation Ordinance, 1975

Country (Pacific)	Law/ Prohibition	Cite
Vanuatu	<u>Coral Trade and Protection</u> Limits coral collection, requires permits for export of trochus, green snail, crustaceans, aquarium fish, coral and beche-de-mer	Fisheries Regulations, 1983
Vietnam	<u>Destructive Fishing Practices</u> Prohibits all activities listed that are detrimental to aquatic resources and cause pollution to the living environment of all aquatic species: using toxic, harmful substances, explosives, gun powder, electric currents to paralyze or kill aquatic stock, and releasing or leaking harmful toxic substances stronger than the allowable limitation	Law on the Conservation and Management of Living Aquatic Resources, art. 8
Western Samoa	<u>Destructive Fishing Practices</u> Prohibits use of explosives or poisons for fishing	Fisheries Regulation Order No. 83, 1965

II. Caribbean/ Central American Countries

Country (Caribbean)	Law/ Prohibition	Cite
Bahamas	<u>Coral Trade and Protection</u> Bans collecting of corals; bans export of marine products by non-Bahamians Bans take of fish, turtle, crawfish, conch, and welks in national parks; or destruction or removal of any animals, including coral, bans removal of sand in national parks <u>Destructive Fishing Practices</u> Prohibits use of bleach, poisons or explosives	Fisheries Resources Regulations, 1986 Bahamas National Trust Act, 1959 Fisheries Resources Regulations, 1986
Belize	<u>Coral Trade and Protection</u> Protects coral reefs within areas designated as national parks	National Park System Act, 1981
Bermuda	<u>Coral Trade and Protection</u> Prohibits take of coral, flora and fauna in coral reef preserves; regulates take of spiny lobsters, fish, scallops, turtles <u>Destructive Fishing Practices</u> Prohibits use of explosives	Coral Reef Preserves Act, 1966; Fisheries Regulation 1972 Fisheries Regulations, 1972
British Virgin Islands	<u>Coral Trade and Protection</u> Provides for protection of coral reefs in marine parks and protected areas	Marine Parks and Protected Areas Ordinance, 1979

Country (Caribbean)	Law/ Prohibition	Cite
Cayman Islands	<u>Coral Trade and Protection</u> Controls take of spiny lobsters, conch, coral and shells	Marine Conservation Law, 1978
Cuba	<u>Coral Trade and Protection</u> Controls take of conch	Legislation, 1977
Dominican Republic	<u>Coral Trade and Protection</u> Controls take of coral	Ley 1728, 1976
Guadalupe	<u>Coral Trade and Protection</u> Controls take of turtles, spiny lobsters and corals	Legislation , 1979
Honduras	<u>Coral Trade and Protection</u> Declares coral reefs as protected areas	Ley de Pescar, 1959
Jamaica	<u>Coral Trade and Protection</u> Protects black coral, turtles and other marine species <u>Destructive Fishing Practices</u> Prohibits fishing with poison or explosives	Wildlife Protection Law, 1945
Mexico	<u>Coral Trade and Protection</u> Bans collection of <i>plexaura homomalla</i> Requires export and import permit for corals , issued by the National Institute of Ecology.	Decree 1974 Agreement Establishing the Classification and Codification of Goods Whose Importation and Exportation Are Subject to Regulation by the Secretariat of the Environment, Natural Resources and Fisheries (9/22/97).
Netherland Antilles	<u>Coral Trade and Protection</u> Controls take of spiny lobster, take of turtle eggs, and collection or destruction of coelenterates and crustose coralline algae Bans collection or destruction of coelenterates and crustose coralline algae Bans coral collection	Bonaire, the Marine Environment Ordinance, 1985 Curacao – the Reef Management Ordinance, 1976 Aruba
St. Lucia	<u>Coral Trade and Protection</u> Prohibits sale and export of aquarium fish ; protects turtles and corals, controls take of conch <u>Destructive Fishing Practices</u> Prohibits dynamiting of coral reefs	Fisheries legislation Wildlife Protection Ordinance, 1980

III. Indian Ocean, Red Sea and Gulf Countries

Country (Indian Ocean, Red Sea, Gulf)	Law/ Prohibition	Cite
Comoros	<u>Coral Trade and Protection</u> Prohibits fishing with dynamite and poison	
Djibouti	<u>Coral Trade and Protection</u> Prohibits coral collecting in certain reserves Prohibits the export of reef fish, collection of shells, and collection, sale and export of dugong, turtles and their eggs until further notice	Arrete No. 72-1363 SG/CG Decret No. 80-062/ PR/MCTT, 1980
Egypt	<u>Coral Trade and Protection</u> Prohibits collection of corals, shells, and other marine animals, spearfishing and taking of marine fish prohibited in mainland Red Sea Province and on Sinai coast to south of El Tur Prohibits fishing and removal of species from reefs from Ras Muhammad to Taba in east and El Tur in West	Pollution legislation passed in 1962, revised in 1980 Sinai Peninsula, Decree 472, 1982
Jordan	<u>Destructive Fishing Practices</u> Prohibits coral collecting, spearfishing, dynamiting	Ministry of Agricultural Law 20, 1973
Maldives	<u>Coral Trade and Protection</u> Black coral may be exported only as a worked product, controls on coral mining, quota for collection of aquarium fish Bans commercial harvest of giant clams.	
Mauritius	<u>Coral Trade and Protection</u> Prohibits import or export without a permit of live fish, corals and shells, whether dead or alive <u>Destructive Fishing Practices</u> Prohibits use of poisons and explosives without a permit	Fisheries Act. 1980 and Fisheries Regulations 1983
Mozambique	<u>Coral Trade and Protection</u> Complete ban on coral and aquarium fish export until at least 2001	Decisions of Minister of Agriculture and Fisheries, dated 2/99 & 5/99
Reunion	<u>Coral Trade and Protection</u> Prohibits collection of living corals and molluscs other than mussels <u>Destructive Fishing Practices</u> Prohibits dynamite or poison for fishing	Arrete 2862, 21.7.76

Country (Indian Ocean, Red Sea, Gulf)	Law/ Prohibition	Cite
Seychelles	<u>Destructive Fishing Practices</u> Prohibits dynamite	
Somalia	<u>Destructive Fishing Practices</u> Prohibits dynamite, electric current, chemical methods of fishing	Maritime Code – Decree 1, 31.2.59 amended by Decree 7, 1.11.66
South Yemen	<u>Destructive Fishing Practices</u> Prohibits use of toxic, explosive or chemical substances for fishing	Law 24, 1979
Sri Lanka	<u>Destructive Fishing Practices</u> Prohibits use of dynamite and possession of fish killed by dynamite or poison	Fisheries Amendments Law 20, 1973
Sudan	<u>Coral Trade and Protection</u> Prohibits collection of corals, shells and aquarium fish	Marine Fisheries Regulations, 1927, Amendments, 19754

Note: **The above compilation of laws is a work in progress. Some of the references may be out of date. Please send any corrections to the International Trade Subgroup.**

APPENDIX C **FEDERAL, STATE AND TERRITORY LAWS RELATING TO** **CORAL HARVEST/TRADE AND DESTRUCTIVE FISHING PRACTICES**

I. Western Atlantic, Gulf of Mexico and the Caribbean

A. Federal Waters (Caribbean, South Atlantic, Gulf of Mexico)

Federal Waters: S. Atlantic, Gulf, and the Caribbean	Law/ Prohibition	Cite
FMPs for Coral and Coral Reefs of the Gulf of Mexico and South-Atlantic, April 1982, with Amendment 2 & 3 (1994-1995) and FMP for Corals and Reef Associated Plants and Invertebrates of Puerto Rico and the U.S. Virgin Islands, July 1994 <i>Implemented at 50 C.F.R. Part 622</i>	<p>Regulations relating to Coral/ Live Rock</p> <p><u>Gulf of Mexico and South Atlantic EEZ</u></p> <p>Prohibits harvest or possession of wild live rock in the Gulf or South Atlantic EEZ after 1997, with an exception for aquacultured live rock if taken under permit.</p> <p>Prohibits harvest of Gulf and South Atlantic or Caribbean prohibited coral (listed in appendix, includes all corals in the Class Hydrozoa and Class Anthozoa), with an exception for scientific and educational purposes by permit.</p> <p>Foreign fishing of corals is prohibited. The direct take of stony corals and sea fans and the destruction of corals in prohibited. Corals taken incidentally in association with other fisheries must be returned to area of capture.</p> <p><u>Caribbean EEZ</u></p> <p>Prohibits take or possession of Caribbean prohibited coral (listed in Appendix) from the Caribbean EEZ Harvest and possession of stony corals, octocorals, and live rock, whether dead or alive, are prohibited, except for the purpose of scientific research, education, and restoration.</p> <p>Prohibits sale or purchase of Caribbean prohibited coral harvested in the Caribbean EEZ. Items will be presumed to be harvested in the Caribbean EEZ unless accompanied by documentation showing it was harvested elsewhere.</p> <p>Harvest and possession of any species, if attached to live rock, is prohibited. Harvest or possession of reef-associated invertebrates requires a permit</p>	<p>50 C.F.R. §§ 622.42(b); 622.43(a)(2)(ii); 622.33(b)(4)(iv)</p> <p>50 C.F.R. § 622.4(a)(1),(3)</p> <p>50 C.F.R. § 622.32(b)(2)</p> <p>50 C.F.R. § 622.32(b)(1)</p> <p>50 C.F.R. § 622.45(a)</p>

Federal Waters: S. Atlantic, Gulf, and the Caribbean	Law/ Prohibition	Cite
FMPs for South Atlantic, Gulf and Caribbean EEZs (Cont'd)	<p>Regulations relating to Aquarium Marine Fish</p> <p><u>Caribbean EEZ</u> Prohibits fishing or possession of Caribbean prohibited coral (listed in appendix) and certain fish (foureye, banded, and longsnout butterfly fish; jewfish; Nassau grouper; and seahorses).</p> <p>Authorizes harvest of marine aquarium fish in the Caribbean EEZ only by a hand-held dip net or a hand-held slurp gun</p> <p>Destructive Fishing Practices</p> <p><u>Caribbean, Gulf or South Atlantic EEZ</u> Prohibits use of explosive, poison or toxic chemicals for fishing in the Caribbean, Gulf, or South Atlantic EEZ</p>	<p>50 C.F.R. § 622.32(b)</p> <p>50 C.F.R. § 622.41(b)</p> <p>50 C.F.R. § 622.31(a),(b), (e)</p>

B. State and Territorial Waters (Caribbean, South Atlantic, Gulf of Mexico)

State/ Territory Waters: W. Atlantic, Gulf of Mexico, Caribbean	Law/ Prohibition	Cite
Puerto Rico	<p>Laws/ Regulations relating to Coral</p> <p>Prohibits harvest or take of corals or live rock for commercial purposes, except under permit.</p> <p>Laws/Regulations relating to Marine Fish</p> <p>Prohibits fishing by means of explosives in the maritime waters of Puerto Rico and adjacent islands, or in the lakes, lagoons, rivers, and other bodies of water, or to sell or possess fish caught by means of any kind of explosive</p> <p>Harvest of other invertebrates and fish is not regulated. Harvesters and exporters of invertebrates for the marine aquarium trade are not licensed, and their activities are not regulated; collectors are not recognized as commercial fishermen.</p> <p>Destructive Fishing Practices</p> <p>Prohibits the use of poisonous substances in Puerto Rican waters.</p>	<p>P.R. Law No. 83, Law No. 132</p> <p>12 L.P.R.A. § 57</p> <p>P.R. Law No. 83</p>

State/ Territory Waters: W. Atlantic, Gulf of Mexico, Caribbean	Law/ Prohibition	Cite
Florida	<p>Laws and Regulations relating to Coral/ Live Rock</p> <p>Prohibits taking, destruction, or sale of sea fans and certain corals (stony coral, fire coral), or possession of any fresh, uncleaned or uncured specimen . Exceptions are provided for specimens legally harvested outside of state waters or federal EEZ waters adjacent to state waters (but burden is on person possessing species to show legality), harvested under permit for scientific or educational purposes, or pursuant to permit for aquacultured live rock.</p> <p>Prohibits harvest or sale of live rock from any state waters.</p> <p>Prohibits transport, destruction, damage, removal, defacing, or take of any coral or other material from the subsoil or seabed of the John Pennekamp Coral Reef State Park which has been taken in violation of any law or regulation of the Federal Government.</p> <p>Laws/ Regs relating to Aquarium Marine Fish</p> <p>Designates certain marine fish, corals, and invertebrates as "restricted species." It is unlawful to sell restricted species to a licensed wholesale dealer; or for a licensed wholesale dealer to buy restricted species, unless there is a restricted species endorsement on the seller's saltwater products license.</p> <p>Requires persons harvesting any tropical ornamental marine life species and plants to land such organisms alive and to have systems aboard the vessel to maintain such organisms in a healthy condition.</p> <p>Sets forth size limits for certain marine fish (angelfish, butterflyfishes, gobies, jawfishes, hogfish).</p> <p>Sets forth bag limits for tropical ornamental marine life and plants (e.g., 20 individuals per day; 5 angelfish per day; 6 colonies of octorals). Sets forth commercial harvest limits (e.g. 75 angelfish per person per day or 150 angelfish per vessel per day, whichever is less; 75 butterflyfishes per vessel per day)</p>	<p>Fl. Admin. Code Ann. R. 46-42.009</p> <p>Fl. Admin. Code Ann. R.46-42.008</p> <p>Fla. Stat. Ann. § 258.083</p> <p>Fla. Stat. Ann. § 370.01(20), § 370.06 Fl. Admin. Code Ann. r. 46-42.001(b)</p> <p>Fl. Admin. Code Ann. r. 46-42.0035</p> <p>Fl. Admin. Code Ann. r. 46-42.004</p> <p>Fl. Admin. Code Ann. r. 46-42.005, 46-42.006</p>

State/ Territory Waters: W. Atlantic, Gulf of Mexico, Caribbean	Law/ Prohibition	Cite
U.S. Virgin Islands	<p>Laws relating to Coral/ Live Rock</p> <p>Unlawful to take, catch, possess, injure, harass, kill, or attempt to take, catch, possess, injure, harass or kill, or sell or offer for sale, or transport or export, whether or not for sale, any indigenous species, including live rock; exception for valid fishing or hunting licenses, scientific or aquarium collecting permits, or indigenous species retention permits.</p> <p>Harvest of live rock and all corals for commercial and recreational purposes is prohibited without a permit. Permits to collect specimens of marine life forms, including live rock, whether or not for sale, and whether or not intended for shipment or export, are authorized for:</p> <p>(A) A private aquarist collecting for a personal aquarium of not more than fifty (50) gallons capacity;</p> <p>(B) A person maintaining an aquarium of any size for a commercial purpose; and</p> <p>(C) A collector for shipment, export, and sale.</p> <p>Permits for coral and live rock are provided on a one-time, case-by-case basis, and require submission of species name and number, location of activity, capture methods, and holding facilities.</p> <p>A permit is required for the harvest and export of other invertebrates for the marine aquaria trade; 53 permits were issued between 1990-1994.</p> <p>Prohibits taking of sand, rock, mineral, marine growth and coral (including black coral), natural materials, or other natural products of the sea, excepting fish and wildlife, from the shorelines without first obtaining a coastal zone permit.</p>	<p>12 V.I.C. § 105 (a)</p> <p>12 V.I.C. § 106(c)(1)</p> <p>12 V.I.C. § 906(a)(7)</p>
North Carolina	<p>Laws relating to Coral/ Live Rock</p> <p>Prohibits harvest or possession aboard a vessel of coral or live rock . Requires that live rock and coral shall be returned immediately to the waters where taken.</p>	N.C. Admin. Code tit. 15A, r. 3I.0116

II. Pacific Region

A. Federal Waters (Indo Pacific Region)

FMPs for Federal Waters (Pacific)	Law/ Prohibition	Cite
<p>Fishery Management Plans (FMP) for the Western Pacific</p> <p><i>Implemented at 50 C.F.R. Part 660</i></p>	<p>Regulations relating to Coral/Live Rock</p> <p>Managed species in the Western Pacific region include commercially important fish (bottomfish and pelagic fish) and crustaceans and precious corals.</p> <p>Precious coral beds are treated as distinct management units because of their widely separated and patchy distribution. The beds are classified as Established, Conditional, Refugia, or Exploratory. Quotas are established for pink, gold, and bamboo coral in the one Established bed and in the Conditional beds. Use of selective and non-selective gear (tangle net dredges) is permitted at Conditional beds of Brooks Bank and the Exploratory beds. A minimum height of 10 inches is set for pink coral. No harvest is permitted at Refugia beds.</p> <p>Regulations relating to Aquarium Marine Fish</p> <p>Coral reef species for the aquaria trade are not regulated, however federal waters are unlikely to be a source of these types of animals due to their considerable depth</p>	<p>50 C.F.R. § 660</p> <p>50 C.F.R. § 660.82</p>

B. State/ Territorial Waters (Pacific/ Indo Pacific Region)

State/Territory Waters (Pacific region)	Law/ Prohibition	Cite
California	<p>Law relating to Coral/ Live Rock</p> <p>Prohibits take or possession for commercial purposes of sea fans, all species of coral and anemone, and live rock (exception for aquacultured live rock). Prohibits collection under marine aquarium collectors permits for certain specified areas.</p>	Cal. Fish & G. Code § 8598

State/Territory Waters (Pacific region)	Law/ Prohibition	Cite
Hawaii	<p>Laws relating to Coral/ Live Rock</p> <p>Prohibits taking, breaking or damaging of live stony corals from waters of Hawaii, including any live reef or mushroom coral. (Exception for scientific collection under permit). Prohibits taking any rock to which marine life of any kind is visibly attached or affixed.</p> <p>Collection of soft corals is allowed only when not attached to reef substrate.</p> <p>Prohibits sale of any stony coral as souvenirs (including rice coral, mushroom coral, lace coral, cauliflower coral, elkhorn coral, finger coral, lobe coral, and orange flower coral; does not include coral rubble pieces or fragments imported for the manufacture and sale of coral jewelry or obtained through dredging operations in Hawaii for agricultural or other industrial uses)</p> <p>Prohibits removal of sand, dead coral, or coral rubble seaward from shoreline with certain exceptions (one gallon per person per day for personal, noncommercial uses; for replenishment of public shoreline areas or construction of state-approved projects with permit, and cleaning activities)</p> <p>Laws relating to Marine Aquarium Fish</p> <p>Collectors must have an aquarium fish catch permit, and commercial collectors must obtain a commercial fishing permit to sell their catch. Permits, issued by DLNR's Div. of Aquatic Resources, allow take of live fish with nets and traps (plan to change regulations & limit net size) – DLNR has no authority to limit the #s of permits; #s increased from 167 to 274 between 1995 and 1998 – DLNR required to report monthly count of the quantities taken of each individual species of aquarium fish exported.</p> <p>Created a West Hawaii Regional Fishery Management Area that will designate 30% of West Hawaii's coastal waters (51.8 miles) as Fish Replenishment Areas in which aquarium fish collection is prohibited.</p> <p>Destructive Fishing Practices</p> <p>Possession or use of explosives, electrofishing devices, and poisonous substances is prohibited in State waters.</p>	<p>H.R.S. § 188-68(a)</p> <p>H.R.S. § 188-68(b)</p> <p>H.R.S. § 171-58.5</p> <p>H.R.S. § 188-31</p> <p>H.R.S. § 188-31.5</p> <p>H.R.S. § 188F-4</p> <p>H.R.S. § 188-23</p>

State/Territory Waters (Pacific region)	Law/ Prohibition	Cite
Guam	<p>Laws relating to Coral/ Live Rock</p> <p>Bans harvest of live coral except with under a license from the Director of Agriculture.</p> <p>Permits commercial taking of coral by permit issued from the Director of Agriculture. Permit may limit amount of coral to be taken, taking into account the location from which the coral is to be taken, the amount of living coral remaining and the likelihood of damage caused to the reef area by the taking of the coral.</p> <p>Bans willful destruction of coral growth for purposes of flushing fish from their habitat or for clearing an area for net fishing.</p> <p>Authorizes the Department of Public Works to distribute for non-commercial use government-owned coral mined from government-owned coral pits at the request and certification of need of the village commissioner or the assistant commissioner of the village where the coral is to be delivered.</p> <p>Destructive Fishing Practices</p> <p>Authorizes issuance of permits for the use of poison, electrical devices or small mesh nets for the purpose of bona fide scientific research.</p>	<p>5 G.C.A. § 63602</p> <p>5 G.C.A. § 63603</p> <p>5 G.C.A. § 63113</p> <p>5 G.C.A. § 54201</p> <p>5 U.S.C. § 63609</p>

**APPENDIX D:
DRAFT TEXT FOR OUTREACH MATERIALS FOR MARINE HOBBYISTS**

**THE MARINE AQUARIUM TRADE
AND THE ENVIRONMENT: WHAT YOU CAN DO
TO HELP PROTECT CORAL REEFS**

Did You Know?

Coral reefs are in serious trouble worldwide.

- Coral reefs around the world are facing a powerful combination of stresses that are threatening their survival, such as increased input of nutrients, sewage and sediment, overexploitation of resources, and destructive fishing practices.
- Unprecedented levels of coral bleaching and mortality associated with abnormally high sea temperatures were reported in 1998. On some shallow Indo-Pacific reefs, 70 to 90% of the corals died as a result of the largest ever recorded bleaching event.
- A 1998 World Resources Institute study concluded that nearly 58% of the world's reefs are at risk from human impacts, and many have been degraded beyond recovery.

The trade in coral reef species for the aquarium and curio trade may be contributing to the worldwide decline and degradation of reefs.

- Although illegal in most countries, the use of cyanide to capture reef fish for the live food fish and the aquarium trade is widespread. Cyanide kills non-target marine organisms including small fish and coral.
- The mortality rate of some of the most popular species of coral from source reefs to home aquaria is estimated to be as high as 90%. The mortality is partially related to capture techniques and handling and transport techniques.
- Nine of the ten dominant taxa for the aquarium trade consist of large-polyp corals that are slow-growing, long-lived, and often rare. Overexploitation of these species could result in severe localized depletions, increased erosion and loss of important fishery habitat.
- The international trade in coral and live rock to supply the aquarium trade has increased at a rate of 12 to 30% per year since 1990.
- Many of the aquarium fish are herbivores, so their removal may alter ecosystem function through a reduction in herbivory, thereby increasing macroalgae that is harmful to corals.

American consumers of coral reef products may inadvertently contribute to the problem.

- The United States is a major global importer of coral reef species for the marine aquarium industry. There are approximately 1 million hobbyists in the United States out of about 1.5 million worldwide. American consumers buy approximately 80% of the live and dead coral and more than 50% of the marine aquarium fish that are traded worldwide.
- The United States strictly regulates or prohibits the domestic harvest of live rock and hard corals in most

federal, state and territorial waters. The domestic market for these items is supplied primarily through imports from other countries.

What Is Being Done.

An international treaty protects some coral species.

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) provides a mechanism for regulating the trade and achieving sustainability in over 2000 species of hard coral, giant clam, and queen conch. Aquarium fish, soft corals, anemones and other invertebrates are not currently listed in CITES.

The U.S. Government is working to address some of these concerns.

- The United States is examining the issues relating to the trade in coral reef species through the U.S. Coral Reef Task Force, which is an interagency task force composed of federal agencies as well as representatives from States and territories with coral reefs in their jurisdiction.
- The federal government participates in a number of international agreements (such as CITES), organizations, and other activities aimed at protecting coral reefs around the world; providing technical and financial assistance to developing countries, including programs to retrain local fishers in less destructive fishing methods and the promotion of environmentally sustainable aquaculture techniques to propagate coral and reef fish for the aquarium industry.
- The U.S. Coral Reef Task Force has recommended the development of guidelines on sustainable aquaculture of coral reef species. Environmentally sustainable aquaculture includes minimizing potential impacts on native species, such as accidental introduction of alien species, diseases or viruses, and complying with all applicable federal, state, and local laws.

What You Can Do.

Become an informed consumer.

- Inform yourself about the threats facing coral reefs around the world.
- When purchasing corals, live rock, fish, and other organisms, ask your store for information about the origin of the items and methods of collection used in harvest. Encourage stores to obtain this information if they do not have it.
- Educate yourself about the species you are purchasing and about maintaining a healthy marine aquarium. Learn about the difficulty or ease of keeping particular species to avoid buying fish or coral that are difficult to maintain in captivity.

Choose responsibly aquacultured species or synthetic corals where possible.

- Consider buying synthetic corals or captive-reared coral from a facility certified to have raised the coral in an environmentally sustainable manner. Consider buying reef fish that are certified as cyanide-free or aquacultured in an environmentally sustainable manner.

For More Information. Check out the U.S. Coral Reef Task Force website at <http://coralreef.gov> or NOAA's coral reef website at <http://www.publicaffairs.noaa.gov/coral-reef.html>

APPENDIX E
MEMBERS OF TRADE SUBGROUP
OF INTERNATIONAL WORKING GROUP

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Nancy Daves	NOAA/NMFS	
John Field	DOI/USFWS	
Roger Griffis	NOAA	
Tom Hourigan	NOAA/NMFS	
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APPENDIX F
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